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WARNING: Since we have no control over equipment or data which may be used with this program, no responsibility is implied or assumed for results obtained through its use. Input data and results may be incorrect or wrong. Therefore the use of this data for loading ammunition can cause serious injury to personnel and material. The computer-results had to be checked against data available in current loading manuals.

LOT-TO-LOT VARIATIONS OF POWDERS, PRIMER SUBSTITUTION AND COMPONENT CHANGE OFTEN RAISE PRESSURES TO UNSAFE LEVELS. THE USER MUST ASSUME THE ENTIRE RISK OF USING THIS DATA FOR LOADING PURPOSES.

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User Data:**Date:**4-Aug-2020**Time:**11:57:56**File:** 458lott_550gr woodleighsn_n550.dat**Comment****Gareth Dicker 550gr Woodleighs SN with N550 Powder****Cartridge / Caliber****.458 Lott****Bullet****.458, 500gr VRG-2, Peregrine**

Maximum Average Pressure, allowed

4300 bar

62366 psi. (Piezo CIP)

with hollowbase

Groove Caliber

11.63 mm

0.458 in.

Bullet Weight

33.37 gm

515.0 gr.

Case Capacity, overflow

7.142 cm³110.0 gr. H₂O

Bullet Length

39.12 mm

1.540 in.

Case Length

71.12 mm

2.800 in.

Bullet Seating Depth

18.8 mm

0.740 in.

Cartridge O.A. Length

91.44 mm

3.600 in.

Barrel/Tube Length

609.6 mm

24.0 in.

Shot Start / Init Pressure

379.0 bar

5497 psi.

Cross Section Area of Bore

1.0494 cm²0.16266 in.²**Propellant type****Vihtavuori N550**

Charge Weight

5.314 gm

82.0 gr.

Load Density

1.025 gm/cm³259.2 gr./in.³

Heat of Explosion, Potential

4050 J/gm

262.4 J/gr.

Energy Density of Charge

4150 J/cm³68006 J/in.³

Propellant Solid Density

1.63 gm/cm³412.21 gr./in.³

Used Ratio of Specific Heats cp/cv

1.223

Burning Rate Factor Ba

0.465 1/s

Weighting Factor

0.5

Burning Function Limit Z1

0.455

Prog.-/ Degressivity Factor a0

1.53

Factor b

1.764

Bulk Density

0.940 gm/cm³ 237.7 gr./in.³**Calculated and Estimated Data:**

Bullet Shank Seating Depth

18.8 mm

0.74 in.

Capacity Displaced by Seated Bullet

1.956 cm³0.1194 in.³

Useable Case Capacity

5.186 cm³0.3165 in.³

Bullet Travel at Muzzle Exit

557.28 mm

21.94 in.

Loading Ratio("Density") / Filling

109.0 % = compressed

Charge Fraction Burnt at Shot Start

1.52 %

Predicted Data:

Maximum Chamber Pressure

4102 bar

59499 psi.

Bullet Travel at Pmax

26.7 mm

1.05 in.

at Muzzle Exit:

Bullet Velocity

678.3 m/s

2225 fps.

Pressure at Muzzle

445 bar

6456 psi.

Bullet Energy

7678 Joule

5663 ft.lbs.

Bullet Barrel Time

1.327 ms

Propellant Burnt

99.0 %

Ballistic Efficiency

35.7 %

Additional Data:

Powder Lot

Bullet Lot

Mfg. Sign

Measured Muzzle Vel., StdDev.

Primer Type and Lot

Case Manufacturer

Proving Loc.

Measured Pressure, StdDev.

WARNING: Near Maximum Average Pressure - unknown tolerances may cause dangerous pressures !

Real maximum (peak) of pressure is reached while bullet moves within barrel.

End of combustion occurs after the bullet's base passes muzzle.

